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## MINI-SIMPOSIO

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### 37. PROVIDING TELEHEALTH SERVICES TO A PUBLIC PRIMARY CARE NETWORK: THE REDENUTES'S EXPERIENCE IN PERNAMBUCO, BRAZIL.

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#### Introduction

Pernambuco is one of the 26 Brazilian states, located in the northeastern region of the country, with 9 million inhabitants estimated population, distributed in 185 municipalities.

The Telehealth Center is an e-health unit of the Clinics Hospital of the Federal University of Pernambuco (NUTES/UFPE). Current major research topics are: Telemedicine, Systems Interoperability, Mobile Applications, Electronic Health Records, Medical Image and Signal Processing, Telemental Health, Behavioral Neuroscience and Public Health Informatics.

Since 2003, the NUTES/UFPE coordinates the Telehealth Centers Network of Pernambuco (RedeNUTES) that have been offering telehealth services, improving and expanding citizens' access to health services by means of telemedicine.

In 2007, the Brazilian Ministry of Health established the Brazil Telehealth Program to provide health support and permanent health education and since then RedeNUTES is a member of this network. Telecare services are offered and tele-education for professionals in the primary health care, priority for members of Family Health Strategy.

This paper aims to describe and analyze RedeNUTES's activities in Pernambuco in the last 30 months, from January 2012 to June 2014.

#### Materials and methods

RedeNUTES is composed by telehealth sites deployed all over the state of Pernambuco. The web portal gathers all systems used by the services, such as a web conferencing application and the HealthNet Platform (PHN), a virtual environment for health collaborations developed by NUTES team.

In this work, two different datasets have been used: one set containing information since RedeNUTES foundation to provide a major view from our regional involvement and a second set containing information from the last 30 months, to provide a current point of view from our performance indexes.

Two different telecare services were provided: teleconsulting and telediagnosis. In our network, teleconsulting are classified by its contents on clinical questions, working process or clinical cases discussion. A clinical question consists in a general question without association to a real patient. In opposition to the question, a clinical case must be related to one specific patient, usually with an electronic health to describe his current health profile as well as his previous medical history. Work process was usually related to details or steps from daily working process.

Additionally, telediagnosis consists in appraising medical examinations when the patient and the specialist are physically separated. In the related program, a tele-electrocardiography approach was developed in the network. In both services, teleconsultor has a term of up to 72 working hours to give the first response to the requester.

Tele-education is a set of educational activities, with a focus on primary health care, aimed at professional development and continuing education. Seminars and courses by webconference were provided, preferably involving topics based on local or suggested by managers and epidemiology professionals. These activities are recorded and made available on the AVA-NUTES library, available for 24-hour access.

The telehealth services mentioned were provided by teleconsultants of several specialties of the Hospital das Clínicas and other partner institutions. We currently have about 150 teleconsultants in RedeNUTES.

## **Results**

RedeNUTES is present in 84 cities with 357 telehealth sites, benefiting more than 3,000 professionals and 862,500 people attended in health facilities. Despite the wide coverage of our network, connectivity stills an issue, only 30% of the municipalities have a good quality Internet link.

In the last 30 months, regarding only to teleconsulting services, there were a total of 1771 requests of these, 73% were clinical questions, clinical cases were 19.2% and 7.8% of the working process issues. The average response time in this period was four days, with the goal of care equal to 72 working hours. Of this total, in 59.4% of cases there was a change of conduct in relation to the patient by reducing patients' referrals to specialists. Moreover, 9.2% of the cases where no prior planned referrals had a qualified case, changing the medical conduct.

Teleconsulting users have 84% rated them as excellent, being nursing the most requested area in the period with 42.5% requests, followed by the medical field with 25%.

Since its creation and until last month, a total of 635 Web Conferencing Seminars were conducted, with digital content online available in the Library RedeNUTES AVA today has more than 1204 learning objects.

## **Discussion**

Based on our results telehealth has been considered effective, since it avoids inappropriate referrals of patient to reference centers.

Tele-education was considered a good tool for continuing education by 97% of health professionals, contributing positively in daily practice. Despite the weak technological infrastructure in municipalities, telecare has been helping to avoid referring patients in specialized network in over 60% of cases. This way, we have concluded that the impact of this reduction in avoidable referrals to specialized network concomitantly increased the resolution the primary health care, contributing to the qualification of the health network.

As a result, our patients should be treated directly in primary care level, without needing to be physically removed to a specialized healthcare facility, located remotely away from his home. In addition to this, there were cases where the clinical discussion leads to a qualified referral to a specialist center directly, reducing the patient's transit time in the healthcare network.

## **Conclusion**

Despite the positive aspects mentioned earlier, low connectivity and professionals' high turnover rates are still important challenges of RedeNUTES. However, healthcare improvement metrics have been reinforcing the importance of raising the coverage and insertion of telehealth services into the most remote sites of our state, providing population covered by the National Health Service and for the training and professional updating health teams, strengthened by integrating teaching and service.